Name:

Exam Style Questions

Parallel Lines

Corbettmaths

Equipment needed: Calculator, pen

Guidance

1. Read each question carefully before you begin answering it.
2. Check your answers seem right.
3. Always show your workings

Video Tutorial

www.corbettmaths.com/contents

Video 196

Answers and Video Solutions

1. Write down the gradient of a line parallel to $y = 7x + 4$

7

(1)

2. Circle the equation of the line parallel to $y = 3x - 5$

$y = 2x - 5$ $y = -3x + 4$ $y = 3x + 1$

(1)

3. Write down the equation of a line parallel to $y = 2x - 3$

gradient is 2

$y = 2x \pm$ anything

e.g. $y = 2x$

$y = 2x + 4$

$y = 2x - 5$

(1)

4. Write down the equation of the line that is parallel to $y = 6x + 1$ and passes through (0, 8).

$y = 6x + 8$

(2)

5. Write down the equation of the line that is parallel to y = x + 1 and passes through (0, –3).

$y = x - 3$

(2)

6. Write down the equation of the line that is parallel to y = –4x – 5 and passes through (0, 10).

$y = -4x + 10$

(2)

7. Circle the equation of the line parallel to y = –x + 2

y = x + 3 (y = –x – 1) y = –2x – 1

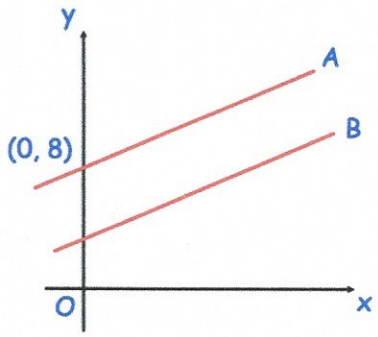
(1)

8. Circle the equation of the line parallel to $y = \frac{1}{4}x$

($y = \frac{1}{4}x + 2$) $y = -4x + 1$ $y = 4x + 3$ $y = -\frac{1}{4}x$

(1)

9.



The lines A and B are parallel.

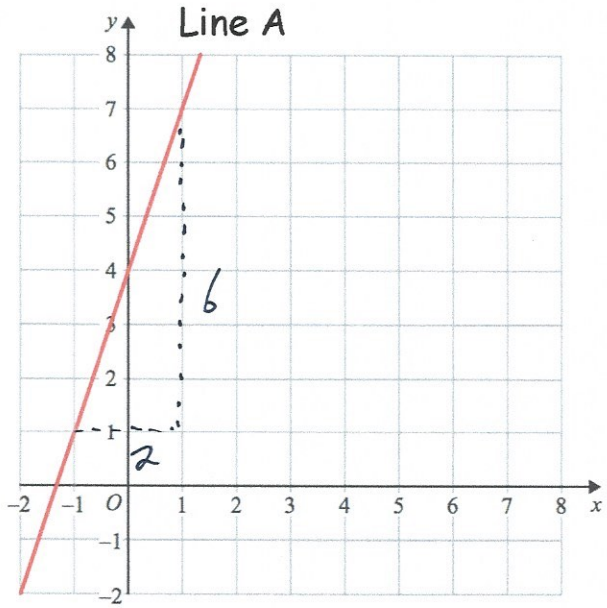
The line A passes through the point (0, 8)
The line B has equation $y = 3x + 1$

Write down the equation of line A

$y = 3x + 8$

(2)

10. The line A is shown below.



$m = \frac{\text{rise}}{\text{run}}$

$= \frac{6}{2} = 3$

(a) Work out the gradient of Line A.

3

(2)

(b) Write down the equation of a line parallel to Line A.

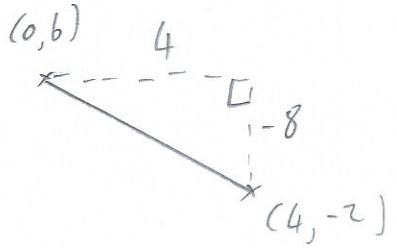
$y = 3x \pm$ anything

e.g. $y = 3x$
$y = 3x + 1$

(1)

11. A straight line L passes through the points (0, 6) and (4, –2).
A straight line M passes through the point (0, 1) and is parallel to line L.

Find the equation of the line M



$\frac{\text{rise}}{\text{run}} = \frac{-8}{4} = -2$

$y = -2x + 1$

(3)

12. Write down the equation of the line that is parallel to $x + 2y = 4$ and passes through the point (0, 5)

$x + 2y = 4$

$2y = -x + 4$

$y = -\frac{1}{2}x + 2$

$y = -\frac{1}{2}x + 5$

(2)

13. The equations of five lines are given below.

Line A $y = 2x + 3$

Line B $y = \frac{1}{2}x - 3$

Line C $y = 6 - x$

Line D $y - 2x = 7$

$y = 2x + 7$

Line E $y + 2x = 3$

$y = -2x + 3$

(a) Which line goes through the point (1, 9)? (x, y)

$y - 2x = 7$

$9 - 2 \times 1 = 7$ ✓

Line D

(1)

(b) Which two lines cross the y-axis at the same point?

A and E

(2)

(c) Which two lines are parallel?

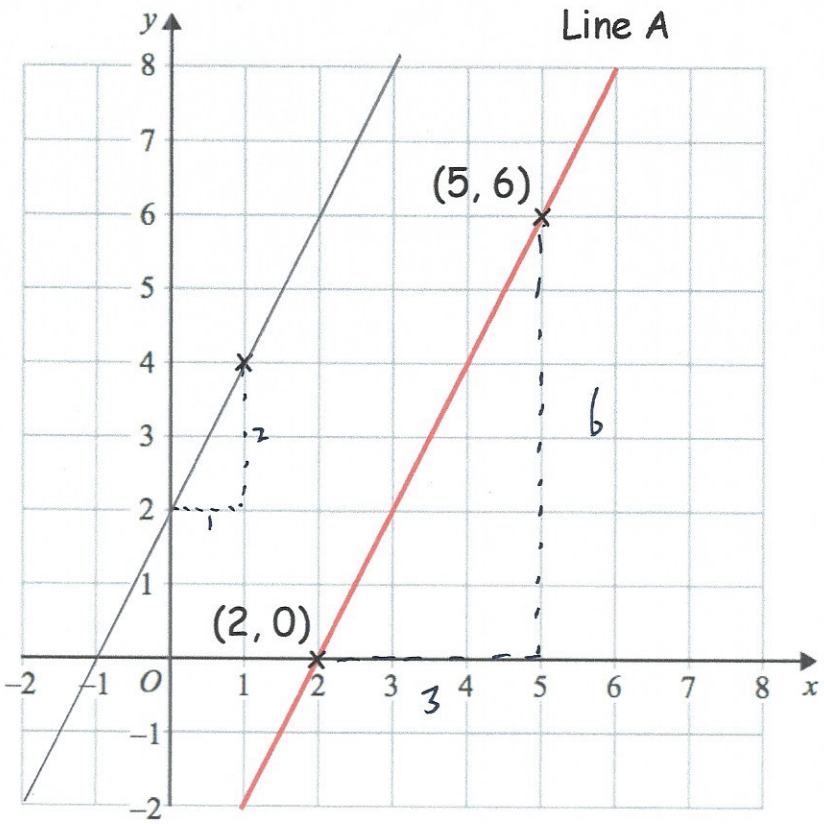
$y = 2x + 3$

$y = 2x + 7$

A and D

(2)

14. A straight line, A, passes through the points (2, 0) and (5, 6).



(a) Work out the gradient of Line A.

$\frac{6}{3}$

2

(2)

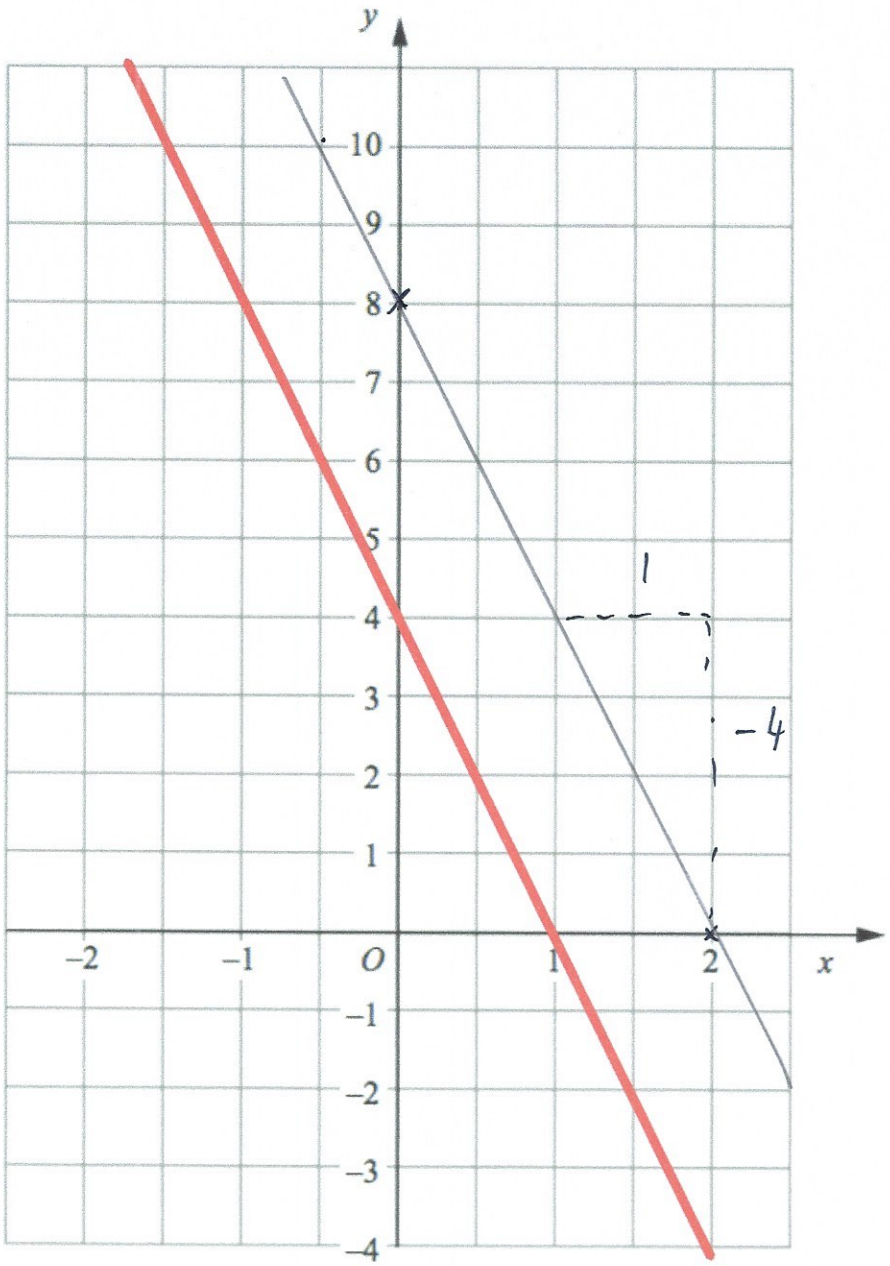
Line B is parallel to Line A and passes through the point (1, 4).

(b) Work out the equation of Line B.

$y = 2x + 2$

(2)

15.



The line A is drawn on the grid.

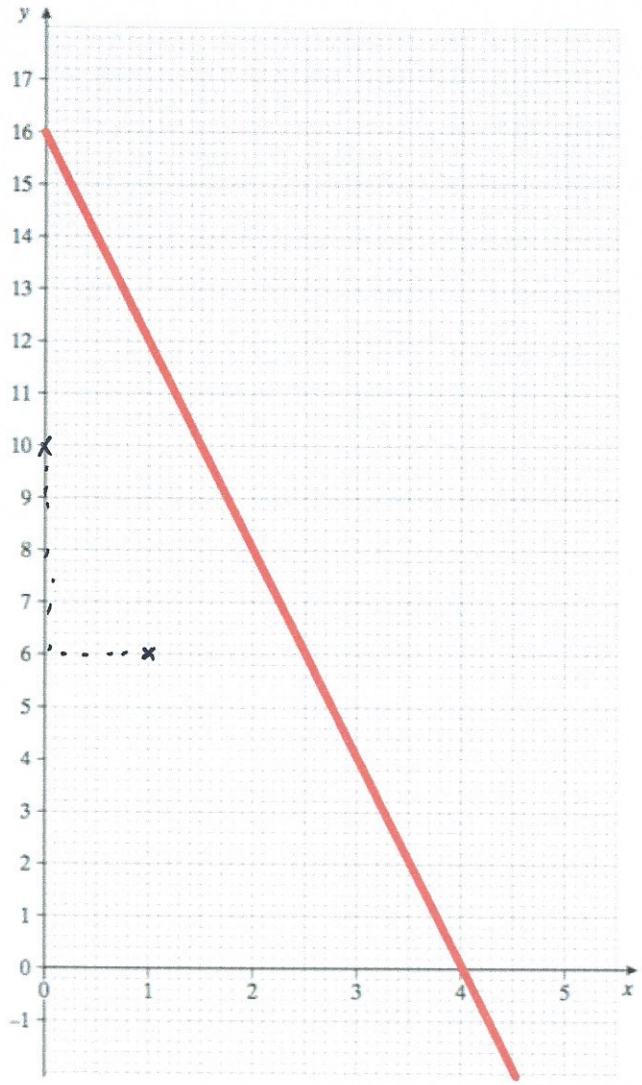
Another line B is parallel to line A and passes through the point (2, 0)

Find the equation for line B.

$y = -4x + 8$

(4)

16. On the grid below, the lines A and B are drawn.



$m = \frac{\text{rise}}{\text{run}}$

$= \frac{-16}{4} = -4$

Shown above is the graph of line L

x y

The line M is parallel to line L and passes through the point (1, 6)

Find the equation of line M.

$y = -4x + c$

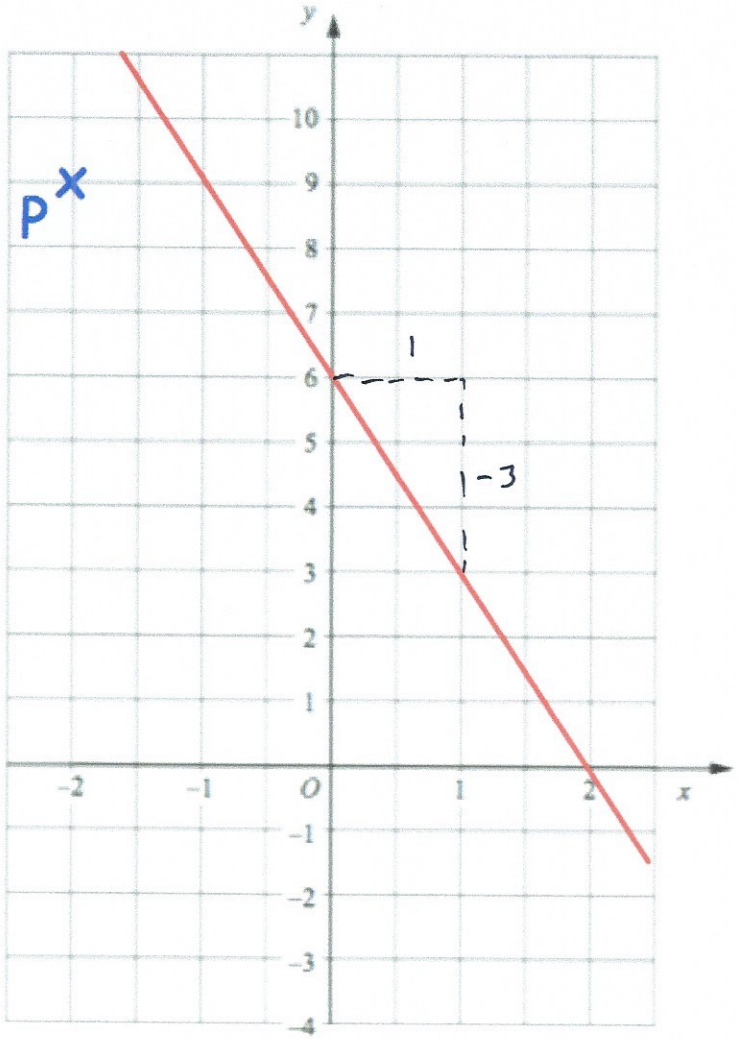
$6 = -4 + c$

$c = 10$

$y = -4x + 10$

(3)

17. The line L is drawn on the grid.



(a) Find the equation of L.

$y = -3x + 6$

(3)

The point P has coordinates $(-2, 9)$.

(b) Find an equation of the line that is parallel to L and passes through P.

$y = -3x + c$

$9 = 6 + c$

$c = 3$

$y = -3x + 3$

(2)

18. Line A and Line B are parallel.

Line A has equation $y = 5x + 9$
Line B passes through the point $(7, 41)$

Find the equation of Line B.

$y = 5x + c$

$41 = 35 + c$

$c = 6$

$y = 5x + 6$

(3)

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19. The straight line L has equation $y = 3x + 2$
The straight line M is parallel to line L and passes through the point $(5, -1)$.

Find the equation of line M

$y = 3x + c$

$-1 = 15 + c$

$c = -16$

$y = 3x - 16$

(3)

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20. Write down the equation of the line that is parallel to $y = 8x - 4$ and passes through the point $(-3, -1)$

$y = 8x + c$

$-1 = -24 + c$

$c = 23$

$y = 8x + 23$

(3)

21. Show that the lines with equations $y = 4x - 1$ and $3y - 12x + 1 = 0$ are parallel.

$y = 4x - 1$

$m = 4$

$3y - 12x + 1 = 0$

$3y = 12x - 1$

$y = 4x - \frac{1}{3}$

$m = 4$

As both lines have a gradient of 4, they are parallel.

(2)

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22. Write down the equation of the line that is parallel to $8x - 2y = 3$ and passes through (5, –1)
x y

$y = 4x + c$

$-1 = 20 + c$

$c = -21$

$+2y \quad +2y$

$8x = 2y + 3$

$8x - 3 = 2y$

$4x - 1.5 = y$

$y = 4x - 1.5$

$m = 4$

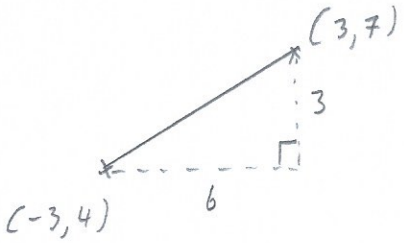
$y = 4x - 21$

(3)

23. Line A and Line B are parallel.

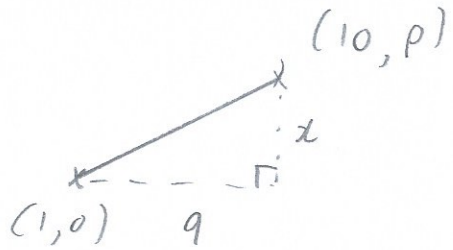
The line A passes through the points (–3, 4) and (3, 7).
The line B passes through the points (1, 0) and (10, p).

Find the value of p.



$m = \frac{3}{6}$

$m = \frac{1}{2}$



$m = \frac{1}{2}$

$\frac{\text{rise}}{\text{run}} = \frac{1}{2}$

$\frac{x}{9} = \frac{1}{2}$

$x = 4.5$

.....

(4)

24. A straight line, L, passes through the point (–2, 5) and is parallel to $x + 2y = 4$

Find the coordinates of the point where L crosses the x-axis.

$x + 2y = 4$

$2y = -x + 4$

$y = -\frac{1}{2}x + 2$

$m = -\frac{1}{2}$

$y = -\frac{1}{2}x + c$

$5 = 1 + c$

$c = 4$

$y = -\frac{1}{2}x + 4$

$y = 0 \rightarrow x\text{-axis}$

$0 = -\frac{1}{2}x + 4$

$\frac{1}{2}x = 4$

$x = 8$

(8, 0)

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(4)